

REMARKS

Applicants acknowledge receipt of the Examiner's Office Action dated July 13, 2005. All pending claims were rejected in the Office Action. Specifically, claims 27-31 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Claims, 1, 5-9, 32, 36, and 37 were rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,358,329 issued to Seiji Muranaka et al. ("Muranaka"). Claims 2-4, 27-31, and 33-35 were rejected under 35 U.S.C. § 103 as being unpatentable over Muranaka in view of U.S. Patent No. 6,277,742 issued to Chien-Jung Wang et al. ("Wang"). Lastly, all pending claims were rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 5,476,816 issued to Karl E. Mautz et al. ("Mautz") in view of U.S. Patent No. 6,410,417 issued to Nien-Yu Tsai ("Tsai") and further in view of paragraphs 9-11 of the instant application. In light of the foregoing amendments and following remarks, Applicants respectfully request the Examiner's reconsideration and reexamination of all pending claims.

In rejecting claims 27-31 under 35 U.S.C. § 112, first paragraph, the Office Action asserts that these claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Applicants have amended claim 27 so that it now includes the limitation "liquid water having a pH slightly less than neutral." This amendment is clearly supported in the specification as noted in the Office Action in paragraphs 2 and 3 thereof. With this amendment, applicants assert that claims 27-31 are in compliance with 35 U.S.C. § 112.

Claims 1, 5-9, 32, 36, and 37 stand rejected under 35 U.S.C. § 102 as being anticipated by Muranaka. The Office Action makes a broad allegation that Muranaka shows a method as claimed in Figures 1-5 and corresponding text. Applicants believe this rejection is not in compliance with 37 C.F.R. § 1.104(c)(2). 37 C.F.R. § 1.104(c)(2) requires that when rejecting claims for want of novelty, the Examiner must cite the best reference at her command, and that when a reference, such as Muranaka, is complex or shows or describes inventions other than that claimed by the Applicant, the particular part relied on must be designated as nearly as practicable. Muranaka, at the very least, is a complex reference. Rejecting claims 1, 5-9, 32, 36, and 37 simply based upon all figures and corresponding text of Muranaka does not meet the requirements of 37 C.F.R. 1.104(c)(2). Applicants request the Examiner to identify with greater

specificity the sections of Muranka relied on to reject claims 1, 5-9, 32- 36, and 37. Otherwise, Applicants request the Examiner to remove this rejection of claims 1, 5-9, 32, 36, and 37.

Notwithstanding the general lack of specificity as required by 37 C.F.R. 1.104(c)(2) in rejecting claims 1, 5-9, 32, 36, and 37 as being anticipated by Muranaka, the Office Action asserts that embodiment four of Muranaka shows a rinsing and/or washing method, where the rinsing or washing fluid may be ultra pure water or a solution for rinsing or a combination thereof, citing column 4, lines 65 through column 5, line 14, in support thereof. Thereafter, the Office Action in paragraph 5 asserts, "Therefore, the rinsing step, for less than three minutes, performed in ultra pure water, and followed by the washing step in a solution is shown." While this cited section of Muranaka may teach a rinsing method and/or washing method for removing resist residue, this cited section fails to teach or fairly suggest critical limitations of independent claim 1. More particularly, though Muranaka teaches a fluid to be used for rinsing or washing (e.g., ultra pure water, a fluid specifically designed for rinsing purpose, or a combination thereof), the cited section of Muranaka fails to teach (1) contacting the electrically connective interconnect line with liquid water *followed by* (2) contacting the electrically conductive interconnect line with a solution to remove residual polymer as required in independent claim 1. In other words, this cited section of Muranaka fails to teach the acts (1) and (2) and their time dependency either alone or in combination with the remaining limitations of independent claim 1. Accordingly, independent claim 1 is patentably distinguishable over Muranaka.

All claims stand rejected under 35 U.S.C. § 103 as being unpatentable over Mautz in view of Tsai and further in view of paragraphs 9-11 of the instant application. The Office Action alleges that paragraphs 9-11 of the instant application constitutes admitted prior art. For the purposes of this Office Action Response only, Applicants will presume that paragraphs 9-11 of the instant application constitutes admitted prior art. However, Applicants reserve the right to contest this allegation in the future.

In rejecting all claims under 35 U.S.C. § 103 as being unpatentable over Mautz in view of Tsai and further in view of the admitted prior art, the Office Action, in essence, reasserts the arguments contained in the Final Office Action dated October 18, 2004, which were used to reject claims 1-9 under 35 U.S.C. § 103 as being unpatentable over Mautz in view of Tsai. In response, Applicants reassert their arguments submitted in the Response to Final dated November 22, 2004, and the arguments submitted in the Response to Advisory Action dated January 12, 2005. In the Response to Advisory Action dated January 12, 2005, Applicants

argued that Mautz teaches away from using the solvent of Tsai in his process to remove photoresist because of the introduction of mobile ion contamination and other reasons. As such, Mautz should not be combined with Tsai along the lines suggested by the Final Office Action or the Office Action dated July 13, 2005.

Applicants have shown that independent claim 1 is patentably distinguishable over Muranaka and patentably distinguishable over Mautz in view of Tsai and further in view of the admitted prior art. Claims 2-9 depend from independent claim 1. Insofar as independent claim 1 has been shown to be patentably distinguishable, it follows that dependent claims 2-9 are likewise patentably distinguishable.

Independent claim 27 stands rejected under 35 U.S.C. § 103 as being unpatentable over Muranaka in view of Wang. In rejecting independent claim 27, the Office Action asserts that Muranaka shows the method substantially as claimed and as shown in the proceeding paragraphs of the July 13, 2005, Office Action. The Office Action admits that Muranaka lacks claim 27's requirement that the liquid water has a pH less than neutral. Thereafter, the Office Action asserts that Wang teaches the removal of polymer residues from an interconnect overlaying a tungsten plug using an electrolytic solution, which is either acidic or basic, in order to avoid corrosion of the overlying interconnect, citing column 1, lines 49-62; column 3, lines 50-67; column 3, lines 1-9 of Wang in support thereof. Applicants reassert their request that the Examiner point out with greater specificity the sections of Muranaka that teach the limitations of independent claim 27 as required by 37 C.F.R. § 1.104(c)(2). Otherwise, Applicants request the Examiner to remove this rejection of independent claim 27. Notwithstanding, the cited sections (i.e., column 1, lines 49-62; column 3, lines 50-67; column 3, lines 1-9) of Wang fail to teach or fairly suggest using an electrolytic solution which is acidic as asserted in the Office Action. More specifically, column 1, lines 49-62 recites the use of a neutral ionic solution such as deionized water to avoid the occurrence of tungsten corrosion. In column 3, lines 1-9, Wang discloses use of an *alkaline* electrolyte solution, the pH value of which is greater than 7.5. Applicants note that Wang lacks column 3, lines 5-57. As such, the cited sections of Wang clearly do not teach or fairly suggest the use of an acidic solution to avoid corrosion of an overlying interconnect as asserted in the Office Action.


To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to

combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. In teaching or suggestion to make the claimed combination and the reasonable expectation of success, must both be found in the prior art and not based on Applicants' disclosure. The initial burden is on the Examiner to provide some suggestion of the desirability of doing what the inventor has done. To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest that the claimed invention or the Examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. MPEP 2142. Given that Muranaka in combination with Wang fail to teach or fairly suggest the use of a liquid water with a pH less than neutral either alone or in combination with the other limitations of independent claim 27, it follows that the Office Action has failed to establish a *prima facie* case of obviousness in rejecting independent claim 27.

Claims 28-31 depend from independent claim 27. Insofar as independent claim 27 has been shown to be patentably distinguishable over Muranaka in view of Wang, it follows that claims 28-31 are likewise patentably distinguishable.

CONCLUSION

Applicants submit that all claims are now in condition for allowance, and an early notice to that effect is earnestly solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the Examiner is requested to telephone the undersigned.

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|  Attorney for Applicant(s) | <u>12/1/05</u> Date of Signature |

Respectfully submitted,



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